**Expense Tracker Documentation**

**Introduction**

The **Expense Tracker** application is a command-line program developed in Python that allows users to manage their daily expenses efficiently. This program enables users to add expenses, categorize them, view detailed spending summaries, and analyze their financial habits.

**Features**

* **User Input**: Allows users to input daily expenses including amount, description, and category.
* **Data Storage**: Saves expenses in a JSON file for future retrieval.
* **Expense Categorization**: Enables users to categorize expenses into different groups such as food, transportation, and entertainment.
* **Data Analysis**: Provides category-wise and monthly spending summaries.
* **User-Friendly Interface**: Simple command-line interface for ease of use.
* **Error Handling**: Ensures that invalid inputs do not crash the application.
* **Persistent Storage**: Maintains records across multiple sessions.

**File Structure**

* **expense\_tracker.py**: The main script that runs the expense tracker.
* **expenses.json**: The file where expense data is stored persistently.

**How to Use**

**Running the Program**

Ensure that you have Python installed. Run the following command in your terminal:

python expense\_tracker.py

**Menu Options**

1. **Add Expense**: Allows the user to enter an expense with details such as amount, description, and category.
2. **View Expenses**: Displays all recorded expenses in a list format.
3. **View Summary**: Provides a breakdown of expenses by category and month.
4. **Exit**: Closes the application.

**Functions Explained**

**load\_expenses()**

Loads existing expense data from expenses.json. If the file is missing or corrupted, it initializes an empty list.

**save\_expenses(expenses)**

Saves the provided list of expenses to expenses.json using JSON format.

**add\_expense()**

* Prompts the user for amount, description, and category.
* Stores the expense with a timestamp.
* Handles invalid numeric inputs.

**view\_expenses()**

* Loads and displays all recorded expenses.
* If no expenses are found, displays a relevant message.

**view\_summary()**

* Computes total spending by category.
* Computes total spending by month.
* Displays category-wise and monthly spending summaries.

**main()**

* Displays a menu allowing users to choose an option.
* Runs in a loop until the user chooses to exit.

**Error Handling**

* Handles missing or corrupted expenses.json files gracefully.
* Ensures that invalid inputs (such as non-numeric values for expense amount) are handled correctly.
* Provides user-friendly messages for incorrect inputs.

**Future Enhancements**

* **GUI Support**: Implement a graphical user interface using Tkinter or PyQt.
* **Database Integration**: Replace JSON storage with SQLite or PostgreSQL for better data management.
* **Expense Filtering**: Allow users to filter expenses by date, category, or amount range.
* **Export Options**: Enable exporting expense data to CSV or Excel for analysis.

**Conclusion**

The Expense Tracker is a simple yet powerful application that helps users manage and analyze their expenses. With additional enhancements, it can become a comprehensive personal finance tool.